**Santa's Present Factory**



*Christmas is just around the corner and this year Santa has decided to share his secret with you. Get ready to learn how his dwarfs craft all the presents.*

First you will receive a sequence of **integers**, representing the number of materials for crafting toys in one box. After that you will be given another sequence of **integers** – their magic level.

Your task is to **mix** materials with magic so you can craft presents, listed in the table below with the **exact** magic level.

|  |  |
| --- | --- |
| **Present** | **Magic needed** |
| Doll | 150 |
| Wooden train | 250 |
| Teddy bear | 300 |
| Bicycle | 400 |

In order to craft a toy, you have to take the **last box with materials** and the **first magic level value**. The total magic level is calculated by their multiplication. If the result **equals** one of the levels described in the table above, you craft the present and **remove both** materials and magic value. **Otherwise**:

* If the product of the operation is a **negative** **number**, then you have to sum the values together, remove them both from their positions and the result should be added to the materials.
* If the product **doesn’t equal** one of the magic levels in the table and is a **positive** number, remove only the magic value and **increase** the material value with **15**.
* If the magic or material (or both) **equals** **0**, remove it (or both) and continue crafting the presents.

Stop crafting presents when you **run out** of boxes of materials **or** magic level values.

Your task is considered done if you manage to craft either one of the pairs - **a doll and a train** **or a teddy bear and a bicycle**.

**Input**

* The first line of input will represent the values of boxes with materials - **integers**, separated by **single space**
* On the second line you will be given the magic values - **integers** again, separated by **single space**

**Output**

* On the first line - print whether you've succeeded in crafting the presents
* **"The presents are crafted! Merry Christmas!"**
* **"No presents this Christmas!"**
* On the next two lines print the **materials** and **magic** that are **left**, **if there are any**, **otherwise skip the line**
* "**Materials left: {material1}, {material2}, …**"
* "**Magic left: {magicValue1}, {magicValue2}, …**
* On the next lines print the presents you **have crafted at least once,** ordered **alphabetically** in the format:

**"{toy name}: {amount}"**

**…**

**Constraints**

* All of the materials' values will be **integers** in range **[1, 100]**
* Magic level values will be **integers** in range **[-10, 100]**
* In all cases at least one present will be crafted

**Examples**

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| 10 -5 20 15 -30 10  40 60 10 4 10 0 | The presents are crafted! Merry Christmas!  Materials left: 20, -5, 10  Bicycle: 1  Teddy bear: 2 | First we have 40\*10=400 which is the needed magic for a bicycle. Remove both. 60\*(-30) = -1800 (negative). 60+(-30)=30. Remove 60 and -30. Add 30 to materials. 30\*10=300 (bear). Remove both. 4\*15=60, so remove 4 and the material is increased by 15 (15+15=30). 10\*30=300 (bear). Print desired text. |
| 30 5 15 60 0 30  -15 10 5 -15 25 | No presents this Christmas!  Materials left: 20, 30  Doll: 1  Teddy bear: 1 |  |